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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,454	07/09/2003	Toru Fujita	04995.108001	1029

7590 03/30/2007
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EXAMINER

LEE, TOMMY D

ART UNIT	PAPER NUMBER
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2625

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/616,454	Applicant(s) FUJITA, TORU	
	Examiner Thomas D. Lee	Art Unit 2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-7 and 12 is/are allowed.
- 6) ☒ Claim(s) 8 and 13 is/are rejected.
- 7) ☒ Claim(s) 9-11 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2/8/07</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,729,663 (Lin et al., hereinafter Lin) in view of U.S. Patent 5,757,976 (Shu).

Regarding claim 8, Lin discloses an image processing device and printer forming halftone spots in cells each having a plurality of pixels by irradiating an exposure beam, said image processing device and printer comprising: a halftone processor for converting M-bit image data into N ($M > N$)-bit drive pulse width data for driving said exposure beam (N-bit output signals generated in response to M-bit input signals,

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where M is greater than N (Abstract); output suitable for driving a pulse-width, position – modulated raster output scanner (column 8, lines 59-65)), said halftone processor including: a threshold matrix including a plurality of threshold values corresponding to said plurality of pixels (threshold look-up table 90 outputs threshold value signal Th1 in response to address P, signal added to constants C1 and C2 to produce thresholds Th2 and Th3 (column 9, lines 12-19)); and a converter circuit which generates drive pulse width data in accordance with said comparison results (output signal generated by comparison of input signal with threshold values signals (column 9, lines 51-65); output suitable for driving a pulse-width, position –modulated raster output scanner (column 8, lines 59-65)); wherein said plurality of threshold values are arranged at irregular intervals (constants C1 and C2 may be integer multiples of one another (thereby producing regular intervals between threshold values Th1, Th2 and Th3), or may be unrelated to one another (thereby producing irregular intervals) (column 9, lines 21-24)).

Lin does not disclose superposing noise to the plurality of threshold values. Shu discloses a thresholding arrangement that includes a random noise circuit 920 for generating random noise errors which are added to a fixed threshold value during a quantization process (column 9, lines 36-61; column 11, lines 53-67). Adding noise errors to threshold values, as disclosed in Shu, is effective in eliminating visible pattern distortion (Abstract), such as worm-type artifacts (column 4, lines 24-27). Thus, it would have been obvious for one of ordinary skill in the art to modify the teaching of Lin by providing a random noise circuit, such as disclosed in Shu, for generating noise errors to be added to the threshold values generated in Lin.

Allowable Subject Matter

5. Claims 1-7 and 12 are allowed.
6. Claims 9-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
7. The following is a statement of reasons for the indication of allowable subject matter: No prior art has been found to disclose or suggest "a pulse position determining circuit for determining a position of a drive pulse for a pixel under processing in accordance with drive pulse width data of pixels adjacent to said pixel under processing; wherein a drive pulse signal is generated at said determined drive pulse position according to said drive pulse width data," as recited in base claims 1 and 12, or "wherein said converter circuit includes adders for adding said noise to said plurality of threshold values output from said threshold matrix, wherein the threshold values of said threshold matrix are selected such that neither carry nor borrow is generated in said adders," as recited in dependent claim 9.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas D. Lee whose telephone number is (571) 272-7436. The examiner can normally be reached on Monday-Friday, 7:30-5:00, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L. Coles can be reached on (571) 272-7402. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Thomas D Lee
Primary Examiner
Technology Division 2625

tdl
March 23, 2007